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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,726	06/23/2000	Shinichi Irisawa	Q59149	9228

7590

02/21/2003

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EXAMINER

ROY, SIKHA

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 02/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/599,726

Applicant(s)

IRISAWA ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The Amendment, filed on December 12, 2002 has been entered and is acknowledged by the Examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0818805 to Fukuyo et al.

Regarding claim 1 Fukuyo et al. disclose (column 5 lines 25-45 Fig. 1) an arc tube comprising an arc tube structure 10 having a light-emitting quartz glass tube W having a discharge space W2 and pinch-sealed portions W1 formed on the two sides of the discharge space, a pair of tungsten electrodes 6 pinch sealed in the pinch seal portions 13 and projecting into the discharge space in the closed glass bulb so as to be opposite to each other.

Regarding the limitation of the average roughness of the surface of each of the tungsten electrodes in contact with the pinch seal portion is 3 μm or smaller, the Examiner takes the position that the average roughness can be as small as null.

Claim 4 essentially recites the same limitation as of claim 1 and hence is rejected for the same reason.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0818805 to Fukuyo et al. and further in view of U. S. Patent 6,354,900 to Ohshima et al.

Regarding claim 3 Fukuyo et al. disclose all the limitations of the method of manufacturing an arc tube which are same as the arc tube as in claim 1, with the exception of pinch-sealing the portions of the tube at a temperature equal to or greater than 2000 °C thereby forming the pinch seal portions.

Ohshima et al. in analogous art of fabricating method of arc tube disclose (column 3 lines 55-65, claim 6) the heated temperature of the pinch seal portion is set in a range of 2000 °C to 2300 °C. Ohshima et al. further notes that this high temperature of pinch-sealing creates negative pressure in the quartz glass tube and the inner wall surface of the pinch-seal can be effectively attracted to the molybdenum foil , consequently fine convex and concave portions are formed on the interfaces between the molybdenum foil and the quartz glass and exfoliation of molybdenum foils can be prevented. Thus the leakage of the arc tube can be prevented and the lifetime can be made longer (column 3 lines 5-15).

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Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to perform the pinch-sealing of the arc tube of Fukuyo et al. at a temperature equal or greater than 2000 °C as taught by Ohshima et al. for preventing leakage in the arc tube and hence increasing its life.

Regarding claim 5 Ohshima et al. disclose the temperature at which pinch seal portions are formed is set in a range of 2000 °C to 2300 °C.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0818805 to Fukuyo et al. and U. S. Patent 6,354,900 to Ohshima et al. further in view of JP 07226185 to Masashi.

Claim 2 differs from Fukuyo and Ohshima et al. in that Fukuyo and Ohshima et al. do not disclose the tungsten electrode subjected to strong electrolytic polishing process.

Masashi in relevant art of discharge lamp discloses the peripheral surface of the tungsten electrode is polished to provide a smooth outer peripheral surface.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to subject the tungsten electrode of Fukuyo and Ohshma et al. to polishing as suggested by Masashi for providing a smooth outer peripheral surface.

Allowable Subject Matter

Claim 6 is allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

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The prior art of record neither shows nor suggests an arc tube having all the limitations as claimed in claim 6 particularly the limitation comprising the average roughness of the tungsten electrodes between $.3 \mu\text{m}$ and $3 \mu\text{m}$.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879


ASHOK PATEL
PRIMARY EXAMINER